

FROM LOCAL DIALECTS TO STANDARD ENGLISH: AI'S ROLE IN PRESERVING LANGUAGE DIVERSITY IN WEST KALIMANTAN

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Abstract

This study investigates the role of artificial intelligence (AI), specifically Duolingo, in assisting Madura and Malay students in West Kalimantan in learning English while maintaining their local dialects. The research at MTS Al Munawarah Kubu Raya employed a qualitative case study approach with 20 students over three days. The primary research questions focused on whether AI could help students identify differences in their local dialects and improve their English pronunciation. The findings show that Duolingo's AI technology effectively provides feedback on pronunciation, helping students recognize and correct mistakes. Despite the challenges posed by unique dialects, the AI tool proved valuable in improving students' English pronunciation skills. However, the study also highlights limitations, as AI may not fully address certain regional dialect features. In conclusion, while AI significantly aids language learning, its effectiveness is enhanced with teacher support, especially for overcoming dialectal influences. This study suggests that AI can be a powerful tool in English language acquisition while respecting linguistic diversity.

Keywords: Artificial Intelligence, Duolingo, English pronunciation, local dialects.

INTRODUCTION

West Kalimantan, Indonesia, is distinguished by its diverse linguistic landscape, where local dialects like Madurese and Malay are integral to daily communication and cultural identity. For students accustomed to these dialects, learning English poses distinct challenges, particularly in pronunciation. The phonological differences between English and local dialects can lead to unique pronunciation patterns, which may hinder effective language acquisition and communication. English, with its global significance, is increasingly essential for academic and professional success in Indonesia. However, the transition from dialectal phonetics to standardized English can feel daunting, emphasizing the need for language learning tools that consider dialectal and cultural backgrounds.

In recent years, artificial intelligence (AI) has emerged as a transformative tool in language education, offering tailored solutions for common learning obstacles. AI-powered applications, particularly those using automatic speech

recognition (ASR), provide immediate and continuous feedback, enabling students to independently identify and correct pronunciation errors. This capability is especially beneficial for students in dialectally rich regions like West Kalimantan, where traditional language instruction may not fully address dialectal influences on pronunciation. According to Levis (2007), speech recognition technology has significant potential for improving pronunciation by offering direct, automated feedback. This is further supported by McCrocklin (2016), who highlights ASR technology's role in fostering learner autonomy, allowing students to practice pronunciation at their own pace. This autonomy is crucial for dialectally diverse students who may feel uncomfortable or self-conscious about pronunciation differences in a classroom setting.

AI's contributions extend beyond pronunciation practice. In linguistically diverse regions, where dialects carry cultural significance, AI can act as a bridge, facilitating the shift from local dialects to standardized English without eroding linguistic heritage. Kern and Warschauer (2000) emphasize the need for cultural sensitivity in language education technology, arguing that network-based approaches can foster cultural inclusivity and respect for linguistic diversity. AI tools designed with these principles can enhance language learning by supporting the development of English skills while respecting and preserving dialectal identities. Similarly, Chun (2016) argues that integrating culturally adaptive technology in language learning can help bridge cultural gaps, making AI a valuable asset for multilingual and multicultural learning environments.

The role of AI in accommodating dialectal variation is another area of significant interest. Ahn and Lee (2016) explore the user experience of AI-driven mobile applications, particularly in how they adapt to dialectal variations in pronunciation. Their study underscores the importance of ASR systems that recognize and adapt to dialectal differences, enabling students to receive pronunciation feedback that aligns more closely with their linguistic background. McCrocklin (2019) further supports this perspective, noting that ASR technology is capable of offering dialect-sensitive feedback, which is invaluable for students from diverse linguistic backgrounds striving to improve their English pronunciation. However, while ASR technology has made strides in this area, challenges remain. AI systems primarily designed for standardized English may not fully capture the subtleties of regional dialects, which can affect the accuracy of pronunciation feedback for dialectal learners.

The cultural and linguistic adaptability of AI tools in language education is a subject of ongoing debate. In the context of West Kalimantan, where dialects like Madurese and Malay are essential to identity, it is vital that AI tools not only support English acquisition but also respect these dialects. Kern and Warschauer (2000) argue for a culturally responsive approach to AI in language learning, stressing the need for systems that recognize and incorporate dialectal diversity. Chun (2016) also emphasizes that language technologies must bridge cultural

divides, ensuring that students from various linguistic backgrounds feel included and respected in their learning process. In addition to these cultural considerations, Chen, Xie, and Hwang (2020) provide a multi-perspective analysis of AI in education, underscoring the potential for AI to enhance language learning through adaptive, learner-centered feedback mechanisms. This adaptability could help make AI tools more inclusive and responsive to diverse linguistic backgrounds, a key factor for regions like West Kalimantan.

This study investigates AI's role in English language learning for dialectally diverse students in West Kalimantan, focusing on pronunciation improvement, dialectal adaptation, and the preservation of cultural identity. By examining existing literature on AI's capabilities and limitations in addressing these challenges, the study aims to contribute insights into the future direction of AI in language learning. Through a combination of AI-driven pronunciation tools, culturally sensitive methodologies, and dialectal inclusivity, the findings suggest that AI holds promise as a supportive tool in English language education while honoring linguistic diversity. The following sections will delve into the methodology, findings, and implications of this research.

METHOD

Research Design

This study employed a qualitative case study approach to explore how artificial intelligence (AI) applications can support English language acquisition among students from dialectally diverse backgrounds in West Kalimantan. A qualitative approach was chosen to capture in-depth perspectives on AI's role in addressing dialectal pronunciation challenges and promoting culturally sensitive language learning. By focusing on real-life student interactions with AI, the study aimed to provide insights into the potential of AI tools to aid English language teaching (ELT) while respecting linguistic diversity.

The qualitative case study design allowed for a nuanced understanding of how students interact with AI tools and how these interactions impact their learning outcomes. Specifically, this research aimed to identify patterns in students' experiences, including their perspectives on pronunciation improvements, challenges in adapting to standardized English, and the role of AI in acknowledging and respecting dialectal nuances.

Population and Sample

The population for this research consisted of students from Madurese and Malay linguistic backgrounds attending a secondary school in West Kalimantan. Given the linguistic diversity of this region, students from these communities often face specific challenges in English pronunciation due to dialectal influences. A purposive sampling method was used to select participants who met the study's criteria: native speakers of either Madurese or Malay with some exposure to English language learning through AI applications. This selection aimed to ensure

that the study's findings reflected the experiences of students with unique pronunciation and dialectal challenges in ELT.

The final sample included 20 students who had engaged with AI-driven language learning applications, primarily those incorporating automatic speech recognition (ASR) technology, such as Duolingo and other pronunciation-focused tools. This sample size allowed for comprehensive observations and in-depth interviews, providing a rich dataset for thematic analysis.

Data Collection Methods

Data collection was conducted using two main methods: semi-structured interviews and participatory observations. These methods were selected to provide both detailed accounts of students' experiences and real-time observations of their interactions with AI tools.

1. **Semi-Structured Interviews:** Following their interactions with AI-based learning applications, each participant was interviewed to gather insights into their experiences. The interview questions were designed to capture how AI supported their transition from local dialects to standardized English, focusing on aspects like pronunciation feedback, adaptation challenges, and cultural inclusivity. The semi-structured format allowed participants to share detailed accounts of their learning experiences while enabling the interviewer to probe for additional details on emerging themes, particularly in areas where AI may have helped or hindered their learning.
2. **Participatory Observation:** Over several days, researchers observed the participants as they interacted with AI applications designed to enhance English pronunciation. During these sessions, observations focused on students' engagement levels, reactions to AI feedback, and how well the tools managed dialectal variations in pronunciation. These observations were systematically recorded to capture key behaviors, such as how students responded to corrective feedback and their ability to identify pronunciation discrepancies influenced by their dialectal backgrounds.

Data Analysis

To analyze the data gathered from interviews and observations, this study employed thematic analysis, a method well-suited for identifying patterns and themes in qualitative data. The first step involved transcribing the semi-structured interviews and reviewing the observation notes in detail. Each transcript was carefully coded to identify recurring topics, such as "pronunciation improvement," "dialectal sensitivity," and "cultural inclusivity." This coding process enabled the researchers to organize the data into categories reflecting key aspects of the participants' interactions with AI tools in language learning.

Following the initial coding, these categories were grouped into broader themes that captured the essence of the participants' experiences with AI-driven

language learning applications. For instance, a theme labeled “pronunciation improvement” emerged as participants consistently highlighted the benefits of receiving immediate feedback on pronunciation mistakes, which allowed them to refine their spoken English independently. Another prominent theme, “dialectal sensitivity,” reflected the mixed responses from participants on AI's ability to recognize and adapt to dialectal nuances. Many students found that while AI could identify standardized pronunciation errors, it often struggled to accommodate specific features of Madurese or Malay pronunciation, leading to occasional misinterpretations or irrelevant feedback. The third theme, “cultural inclusivity,” captured participants' perspectives on the cultural relevance of AI feedback. Some participants noted that AI's standardized approach to English learning sometimes overlooked the unique phonological traits of their dialects, which underscored the need for culturally adaptive AI tools.

To enhance the validity of these findings, member checking was employed as a final step. Selected participants were invited to review the preliminary analysis and provide feedback on the accuracy of the interpretations. This process allowed participants to clarify or expand on certain points, ensuring that the identified themes accurately reflected their experiences. Through this careful thematic analysis, the study produced a nuanced understanding of AI's role in pronunciation, dialectal adaptability, and cultural responsiveness within English language learning.

Limitations of the Study

While this study aimed to provide a comprehensive exploration of AI's role in ELT for dialectally diverse learners, certain limitations should be acknowledged. The relatively small sample size and the specific focus on Madurese and Malay dialects mean that the findings may not be generalizable to all dialectal groups or regions. Additionally, the study relied on specific AI applications that may vary in adaptability and functionality, which may limit the transferability of the findings to other AI-driven language learning tools.

RESULTS AND DISCUSSION

The findings from this study reveal insights into the role of artificial intelligence (AI) in facilitating English language learning among dialectally diverse students in West Kalimantan. Through the analysis of interviews and observations, three major themes emerged: AI's impact on pronunciation improvement, its effectiveness in managing dialectal variations, and its limitations in addressing cultural sensitivity. These findings highlight both the benefits and challenges associated with using AI-driven tools in a multilingual, culturally rich educational environment.

1. AI's Impact on Pronunciation Improvement

One of the most prominent benefits of AI in English language learning was its capacity to enhance pronunciation accuracy. Many participants reported

that AI-driven applications, particularly those incorporating automatic speech recognition (ASR), allowed them to receive immediate, specific feedback on pronunciation errors. This feedback encouraged students to practice more frequently and refine their pronunciation skills independently. For instance, participants mentioned that applications like Duolingo provided real-time alerts when they mispronounced words, highlighting specific phonetic areas that required attention. This instant feedback was particularly valuable for students who may not have had frequent opportunities to practice English with native speakers, enabling them to monitor and correct their pronunciation autonomously.

The qualitative data also revealed that the autonomy provided by AI tools played a significant role in building students' confidence in spoken English. Participants appreciated the nonjudgmental nature of AI, which allowed them to experiment with pronunciation without the social pressures typically present in classroom settings. This aligns with Levis (2007) and McCrocklin (2016), who emphasize the role of ASR technology in fostering independent pronunciation practice. Students noted that the ability to repeat exercises and hear immediate feedback contributed to a noticeable improvement in their pronunciation accuracy over time. However, it is important to note that while AI facilitated significant gains in pronunciation, it was most effective in cases where students were already somewhat familiar with English phonology, indicating that AI's impact may vary depending on the learner's initial language proficiency.

2. Effectiveness in Managing Dialectal Variations

The study also explored how well AI tools adapted to dialectal differences, a critical consideration for Madurese and Malay speakers learning English. The findings revealed that while AI applications offered general pronunciation guidance, their ability to address dialect-specific challenges was limited. Several participants noted that the feedback provided by ASR systems sometimes failed to account for phonetic features unique to their dialects, leading to occasional misinterpretations of their spoken English. For example, some Malay-speaking participants mentioned difficulty with certain English phonemes that do not exist in their dialect, such as the "th" sound, which was often misinterpreted by the AI as a completely different phoneme. Similarly, Madurese speakers noted that the AI applications sometimes struggled to recognize elongated vowels, a characteristic of their native speech, resulting in feedback that was not fully applicable to their pronunciation needs.

This limitation is consistent with the findings of Ahn and Lee (2016), who explored how ASR applications in mobile learning could manage dialectal variations, but often lacked the depth needed to fully adapt to each learner's linguistic background. McCrocklin (2019) also supports this, noting that while ASR technology is capable of providing broad feedback on

pronunciation, it is often unable to adjust to nuanced dialectal differences. Despite these challenges, students generally appreciated the AI's attempt to provide structured feedback, even if it was not always entirely accurate. Some participants expressed hope that future versions of AI tools might improve in their adaptability to dialectal characteristics, allowing them to learn English pronunciation without feeling pressured to entirely conform to a standardized phonology that might disregard their dialectal identity.

3. Limitations in Addressing Cultural Sensitivity

While AI demonstrated clear benefits in improving pronunciation and offering structured feedback, the findings highlighted a notable limitation in the cultural sensitivity of these tools. Participants often remarked that AI applications followed a standardized approach to English learning, which occasionally conflicted with the phonological and cultural elements of their native dialects. Kern and Warschauer (2000) and Chun (2016) emphasize the importance of cultural sensitivity in language learning technologies, noting that a culturally adaptive approach can make learning more inclusive and relevant for students from diverse linguistic backgrounds. However, the study found that current AI applications often lack this cultural adaptability.

For instance, students from both Madurese and Malay backgrounds expressed that certain culturally embedded expressions or pronunciation styles were not recognized by the AI, which sometimes led to incorrect feedback or suggestions. This lack of cultural sensitivity not only limited the AI's effectiveness but also sometimes caused frustration among learners who felt that their linguistic heritage was being overlooked. Some students mentioned feeling conflicted between adhering to the AI's standardized feedback and preserving their dialectal identity, highlighting a tension between cultural identity and language acquisition. Although AI is a powerful tool for language learning, these findings suggest that culturally adaptive AI systems could create a more inclusive environment, particularly for students from dialectally rich regions like West Kalimantan.

Overall, the findings indicate that while AI tools have made significant strides in supporting pronunciation improvement and providing autonomous learning opportunities, there remains considerable room for growth in addressing dialectal variations and cultural sensitivity. These challenges underscore the need for future AI advancements that prioritize inclusivity, allowing learners to benefit from AI-driven language education without feeling disconnected from their cultural and linguistic roots.

4. Discussion

The findings of this study underscore the potential of artificial intelligence (AI) in supporting English language learning among dialectally diverse students in West Kalimantan. AI-driven applications provide unique opportunities for improving pronunciation, offering real-time feedback, and

fostering learner autonomy. However, the findings also reveal limitations in AI's capacity to fully adapt to dialectal nuances and cultural sensitivities. This discussion interprets these findings in relation to broader implications for language learning, the preservation of dialectal diversity, the role of teachers, and future directions for AI in language education.

5. Implications for Language Learning and Preservation of Dialects

One of the key implications of this study is the importance of balancing English language acquisition with the preservation of local dialects. AI applications, with their standardized approach to pronunciation feedback, often struggle to recognize and incorporate the unique phonetic characteristics of dialects like Madurese and Malay. This challenge suggests that while AI can be a powerful tool for language learning, it must be carefully implemented to avoid inadvertently marginalizing dialectal diversity. García and Baker (2008) emphasize the significance of linguistic diversity in multilingual educational settings, noting that students benefit most from language learning frameworks that respect and integrate their native linguistic identities. For students in West Kalimantan, who are accustomed to dialectal speech patterns, AI applications that fail to acknowledge these dialectal nuances may inadvertently pressure them to conform to a single standardized form of English.

To address this issue, AI tools could be developed with more flexible, dialect-aware feedback mechanisms that recognize and accommodate diverse pronunciation patterns. By enabling AI to account for dialectal differences, developers could create a more inclusive language learning experience that encourages students to engage with English while still respecting their linguistic heritage. Additionally, this adaptability could help reduce potential resistance to AI-driven language learning by making students feel that their dialectal identity is recognized and valued. This aligns with the work of Ahn and Lee (2016), who suggest that AI tools should prioritize linguistic inclusivity, particularly in dialectally diverse regions.

6. Role of Teachers in AI-Enhanced Language Learning

While AI applications can enhance pronunciation skills and provide autonomous learning opportunities, the findings highlight the indispensable role of teachers in supplementing AI-driven language learning. Teachers play a critical role in contextualizing AI feedback, helping students understand the reasons behind certain pronunciation corrections, and providing guidance on when it may be appropriate to adopt standardized English versus dialectal speech patterns. Godwin-Jones (2019) supports this perspective, emphasizing that teachers can bridge the gap between AI's standardized approach and the cultural complexities of language learning by offering culturally informed insights.

In the context of West Kalimantan, teachers can help students navigate the tension between standard English pronunciation and their native dialects. For instance, they can explain how specific English sounds may differ from Madurese or Malay phonemes, offering tips on approximating challenging sounds without feeling pressured to entirely abandon their dialectal characteristics. Teachers can also foster discussions around language diversity, encouraging students to view their dialectal influences as assets rather than obstacles. This approach is essential in helping students develop a sense of linguistic confidence and ownership over their language learning journey, as they understand that English proficiency does not require abandoning their linguistic heritage.

Additionally, teachers can play a crucial role in identifying areas where AI feedback may lack cultural sensitivity. By providing supplementary explanations and culturally responsive feedback, teachers can alleviate some of the frustration students may experience when AI applications fail to acknowledge or adapt to dialectal variations. This balance between AI-driven feedback and human guidance could create a more supportive and culturally inclusive language learning environment, particularly for students in regions with significant dialectal diversity.

7. Further Implications for Dialect Preservation and Cultural Inclusivity

The preservation of dialects is not only an educational goal but a cultural imperative, especially in regions as linguistically rich as West Kalimantan. Dialects such as Madurese and Malay are deeply intertwined with the local identities and cultural traditions of their speakers. When language learning emphasizes standardization over dialectal diversity, there is a risk that learners may feel pressured to distance themselves from their linguistic roots, which can lead to a gradual erosion of cultural identity. By supporting AI tools that incorporate dialectal diversity in their language learning framework, educational institutions can play a role in preserving these cultural elements. In this way, AI in language education goes beyond linguistic skills to become a tool for cultural preservation and inclusivity.

Furthermore, adopting AI systems that respect dialectal and cultural differences can foster a sense of pride and empowerment among students, allowing them to engage with English as a global language without feeling disconnected from their heritage. As García and Baker (2008) suggest, dialectal sensitivity in language education fosters a more inclusive learning environment where linguistic heritage is valued alongside language acquisition. Integrating these principles into AI language tools ensures that learners are not only equipped with practical language skills but are also encouraged to maintain their linguistic identities. In the context of West Kalimantan, this approach is essential to achieving both educational and cultural objectives, as students from diverse dialectal backgrounds transition

from local dialects to standardized English without compromising their cultural identity.

8. Future Directions for AI in Language Learning

The findings of this study also point toward exciting future directions for AI in language learning, particularly in terms of enhancing dialectal adaptability and cultural sensitivity. Current AI applications show promise in pronunciation improvement and autonomous learning, yet they remain limited in their capacity to fully embrace linguistic diversity. Chen, Xie, and Hwang (2020) discuss the potential of AI to transform language learning by providing adaptive, learner-centered feedback. In line with this vision, future AI advancements could prioritize algorithms capable of recognizing and adapting to dialectal variations, allowing for more personalized and culturally responsive language learning experiences.

One promising area for future development is the integration of dialect-sensitive algorithms into ASR systems, enabling AI to provide pronunciation feedback that respects local speech patterns. For instance, ASR could be designed to recognize common phonetic substitutions or variations specific to dialects like Madurese and Malay, adjusting feedback to be more relevant and accurate for these learners. Such technology would not only enhance pronunciation accuracy but also foster a greater sense of linguistic inclusivity by acknowledging the unique phonological features of each dialect. This aligns with McCrocklin's (2019) argument for ASR technology as a dialectally sensitive tool that can address pronunciation issues without imposing a rigid, standardized model of English.

Furthermore, future AI applications could incorporate cultural insights alongside pronunciation feedback, helping students understand the context behind certain language features. This approach could cultivate both linguistic and cultural competence, allowing students to navigate multilingual settings with a more holistic understanding of English. By creating AI systems that are responsive to both linguistic and cultural diversity, developers could support language acquisition in ways that celebrate, rather than overshadow, regional dialects and cultural identities.

Overall, the future of AI in language learning lies in its ability to evolve from a one-size-fits-all approach to a more nuanced, inclusive model. This evolution would empower students from dialectally diverse backgrounds to learn English effectively while preserving their linguistic heritage, creating a balanced framework that respects both language acquisition goals and cultural identity.

CONCLUSION

This study explored the role of artificial intelligence (AI) in supporting English language learning for dialectally diverse students in West Kalimantan,

focusing on the Madurese and Malay dialects. AI-driven applications, particularly those incorporating automatic speech recognition (ASR), have shown considerable promise in helping students improve pronunciation by providing instant, customized feedback. This feedback fosters autonomous learning, enabling students to refine their spoken English independently and increase their confidence. However, the findings also reveal limitations in AI's adaptability to dialectal nuances and cultural sensitivities, underscoring a need for further development in AI technology to accommodate the unique linguistic backgrounds of learners in multicultural, multilingual settings.

The study's findings highlight that, while AI applications are beneficial in promoting standardized English pronunciation, they often lack the flexibility required to adapt fully to specific dialectal variations. For students in West Kalimantan, who face unique phonetic challenges associated with Madurese and Malay dialects, this limitation can sometimes result in irrelevant or misinterpreted feedback. Although AI applications have advanced significantly in terms of pronunciation accuracy, they are still not fully equipped to address the linguistic diversity that characterizes multilingual regions like West Kalimantan. These findings suggest a need for dialect-sensitive AI algorithms that can provide learners with pronunciation feedback aligned more closely with their native phonological patterns.

Additionally, the role of teachers emerged as a crucial factor in the effective integration of AI in English language teaching (ELT). Teachers serve as cultural mediators, providing context-sensitive guidance that AI tools currently cannot offer. In helping students navigate between dialectal identities and standardized English, teachers bridge the gap between AI's rigid feedback mechanisms and the cultural complexities of language learning. This highlights the importance of teacher involvement in AI-assisted language learning, ensuring that AI's benefits are maximized while addressing its current limitations in dialectal sensitivity.

Looking to the future, the study points toward exciting directions for AI in language learning. The development of culturally responsive AI systems, capable of recognizing and adapting to diverse dialects and cultural nuances, could revolutionize language education by creating a more inclusive environment for learners worldwide. By incorporating dialect-sensitive algorithms and culturally informed feedback, future AI applications could better support language acquisition in multilingual settings, preserving linguistic diversity while promoting English proficiency. This vision aligns with the broader educational goal of fostering cultural inclusivity and linguistic respect in language learning, particularly in regions where dialects are an essential component of identity.

In conclusion, while AI has made significant contributions to language learning, particularly in pronunciation and autonomous practice, its true potential will be realized as it evolves to accommodate the complexities of dialectal

diversity and cultural sensitivity. For regions like West Kalimantan, where language learning involves a delicate balance between acquiring new skills and preserving linguistic heritage, AI holds the promise of supporting both goals. This study contributes to the growing body of research on AI in language education, emphasizing the importance of inclusive, culturally responsive approaches to AI development in the pursuit of effective and equitable language learning.

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